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## Roller Mill Coolant Recovery

By: Ken Barnes

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B-Line Systems, Inc., located in southern Illinois, manufactures metal support systems used in electrical and mechanical systems for conduit, process piping, wiring and other equipment.

B-Line's initial interest in membrane filtration was to reduce their wastewater disposal. In its present operation B-Line was disposing of 30,000 gallons of oily wastewater per year at a cost of \$18,600 annually.

A demonstration project using a single 0.2 micron tubular filter successfully separated 99 percent of the oil from the wastewater. However, the demonstration indicated that there was a greater opportunity in recovering the synthetic coolant for reuse. Laboratory testing had indicated that the filtrate from the membrane filter contained 18 percent roller mill coolant and 82 percent water. The recovered solution mixture was almost identical to B-Line's 5:1 coolant mixture.

The success of the demonstration induced B-Line's management to conduct a 30-day pilot study with a larger membrane system.

The objective of the pilot study was to determine how much roller mill coolant could be recovered and the economic incentive to do so.

A pilot membrane system equipped with four tubular membranes with a molecular cutoff weight of 100,000 to 300,000 was used for the on-site pilot study.

Laboratory analysis of the membrane permeate indicated that the membrane recovered 65 percent of the coolant while removing 87 percent of the oil and grease.

Implementation of membrane filtration technology in B-Line's roller mill operations and their press operations would save the company approximately \$46,000 per year. The payback on the project was expected to be less than seven months.

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